Department of
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Bureau of Land & Water Quality - July 2003

O&M Newsletter

A monthly newsletter for wastewater discharge licensees, treatment facility operators, and associated persons

Laboratory "Laws"

I receive a quarterly magazine from an engineering society and in many issues there are articles by a man named Mr. Lyle delivering the authors observations as one of his "laws". The article in the last issue talked about things that sometimes happen in research laboratories and it got me thinking about how such things could also happen in the labs at wastewater treatment plants.

I will state, up front, that my opinion of the lab skills of most wastewater treatment operators in Maine is very high. I have watched many operators and lab technicians perform their duties. Most do their routine tests "by the book" and interpret the results correctly. To be sure, we have found individuals who have "fudged" the numbers with "pencil chemistry", but nearly all of you who do lab tests are conscientious and do things right.

In the beginning of his article, Mr. Lyle tells the story of his aunt who drove around rural Iowa with little regard to the local traffic laws. One day, she came to in intersection with a Stop sign and she drove right on through without even slowing down much. There happened to be a local police office sitting near that intersection and he promptly stopped the woman and gave her a traffic ticket. When she got to court, she explained that as she approached the intersection, she looked both ways and, seeing no other cars, she "moseyed on through". The judge found her guilty of "failing to come to a full and complete stop at a stop sign" and fined her $50. He said to her, "If the sign says, 'Mosey', it's okay to mosey on through, but if the sign says 'Stop', you better stop!"

The author then explained how, on several occasions, students conducting laboratory research under his supervision had come up with what seemed like valid results supporting one or another of the theories the author and/or the students were trying to demonstrate. On more careful inspection of the actual lab results, the author found that those results really didn't support the theory. He points out that when most of us are investigating something, we sometimes overlook things that don't support our preconceived notions.

Most wastewater treatment plant operators want the best possible effluent coming from their plants. They want the results of their lab tests to verify the quality of the effluent. With these goals in mind, it's easy to see where bias might have you overlook an important step in a certain test, like calibrating your pH meter before every measurement. Heck, the probe sits in a neutral pH solution when you're not using it. Why bother to check the calibration every time. We "know" the effluent is always between 6.9 and 7.2 anyway…

The point is, make sure you know what the test procedure is and follow **all** the steps **completely**. Don't assume that the results will be what you've seen every day for the past ten years or that they'll be what you want them to be. Remember the old Russian proverb President Reagan was fond of quoting: "doveryay, no proveryay" ("trust, but verify"). You know you're doing a good job, but make sure the lab results always verify of that fact.

Dick Darling

For Practice

1 The Aerobic Sludge (or Solids) Retention Time (Aerobic SRT) is:
   a. The length of time an average microbe spends in the aeration basin.
   b. The length of time an average microbe spends in the secondary clarifier and return sludge line.
   c. The length of time an average microbe spends in the treatment system before being wasted or lost in the effluent.
   d. The ratio of the solids in the aeration basin to the solids in the primary effluent.

2. What is the best remedy if there are not enough microorganisms in the aeration basin?
   a. Increase the F/M Ratio
   b. Decrease the Influent BOD
   c. Increase the DO level
   d. Decrease Wasting

3. One cause of short-circuiting in a secondary clarifier is:
   a. Uneven weirs
   b. Excessive sludge pumping
   c. Excessive buffering
   d. Low skimmer speed

4. If a chemical feed pump will supply a maximum of 18,500 pounds per day, what is the maximum feed rate in gallons per minute?
   a. 0.82 gpm
   b. 1.12 gpm
   c. 1.54 gpm
   d. 2.34 gpm

Certification News

The results of the Spring 2003 Operator Certification Exam have been mailed out. Congratulations to those who passed and to those who didn't… study hard for the next exam. The breakdown of the results from the exam is given below.

Grade 1	12 of 13	67%
Grade 2	12 of 15	80%
Grade 3	4 of 10	40%
Grade 4	2 of 4	50%
Grade 5	4 of 22	5%
Grade PC-1	1 of 2	50%
Overall	35 of 56	63%

The Fall Wastewater Treatment Plant Operator Exam will be given in the usual locations on November 12, 2003. Applications must be postmarked by September 27, 2003 or delivered to the DEP by September 29, 2003.

Approved Training

The Fall training calendars for JETCC and MRWA should be ready for the next issue of the *O&M News*.

September 25, 2003 in Portland, ME – Bulk Chemical Delivery Workshop- Sponsored by MWUA/NEWWA (508) 893-7979 – Approved for 6 hours.

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December 2&3, 2003 in Freeport, ME - MRWA Annual Conference – Sponsored by MWRA, (207) 729-6569 – Approved for TBA hours.

Answers to *For Practice:*

1. a. The Aerobic Sludge (or Solids) Retention Time is the amount of time a typical biomass cell spends in the aeration basins. This is where the microbes in the sludge do most of their work removing organic matter from the wastewater

2. d The only way to build up the biological mass in the system is to not waste the microorganisms out of the system

3. a. Uneven weirs on clarifiers cause more water to be discharged over low places along the weir. If more water is discharged at one point, the clarifier will be more likely to short circuit through that area.

4. c. The pump delivers 18,500 pounds/day which is 770.83 pounds/hour or 12.85 pounds/minute. 1 gallon weighs 8.34 pounds so the feed rate is 12.85/8.34 = 1.54 gallons/minute.